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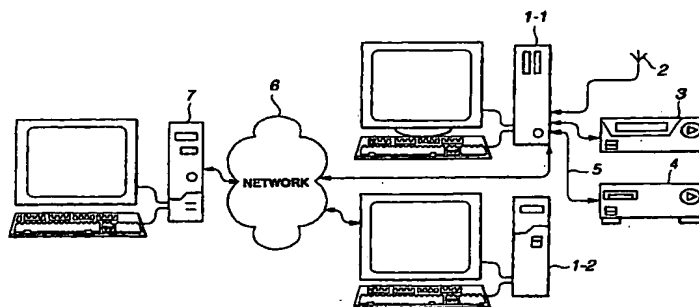
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(54) **INFORMATION PROCESSING DEVICE AND METHOD FOR CONTROLLING PROGRAMMED VIDEO RECORDING OF TELEVISION BROADCAST PROGRAM AND RECORDED MEDIUM ON WHICH PROGRAM IS RECORDED**

(57) A recording reservation data comprised of text data indicating the information that the text data is the recording reservation data, the information specifying the date and time of starting the recording, the information specifying a channel for recording, the information

specifying the date and time of start of the recording and the information specifying the time of end of the recording is transmitted.



**FIG.1**

being stated next to "DTEND:", the information specifying a channel for recording, the channel specifying information being stated next to "LOCATION:", the name of a program for recording, recorded next to "DESCRIPTION:" and the information "END:VCALENDAR" indicating the end of the recording reservation data.

#### Brief Description OF the Drawings

#### [0016]

Fig.1 shows an embodiment of a picture recording and/or reproducing system according to the present invention.

Fig.2 shows an embodiment of a picture recording and/or reproducing system according to the present invention.

Fig.3 is a block diagram showing the structure of a personal computer.

Fig.4 shows the structure of a picture processing board.

Fig.5 illustrates the structure of a personal computer.

Fig.6 illustrates an application program executed by the personal computer.

Fig.7 illustrates an application program executed by the personal computer.

Fig.8 illustrates the structure of an application program, a middleware and drivers executed by the personal computer.

Fig.9 shows an exemplary structure of AV contents.

Fig.10 illustrates a picture displayed on a CRT of the personal computer.

Fig.11 illustrates a picture displayed on a CRT of the personal computer.

Fig. 12 illustrates another picture displayed on a CRT of the personal computer.

Fig.13 illustrates a picture by a reservation recording setting program.

Fig.14 illustrates another picture by a reservation recording setting program.

Fig.15 illustrates a picture by a reservation recording setting program.

Fig.16 illustrates a picture of a WWW browser.

Fig.17 shows an example of recording reservation data.

Fig.18 shows an example of a channel conversion file.

Fig.19 illustrates a picture displayed on a CRT by a personal computer running a private information management program.

Fig.20 illustrates a picture of an E-mail program of a personal computer demonstrating an E-mail having recording reservation data of the v-calendar system appended thereto.

Fig.21 shows an example of recording reservation data of the v-calendar system.

Fig.22 is a flowchart for illustrating the processing

for recording reserving.

Fig.23 is a flowchart for illustrating the processing for channel setting.

Fig.24 is a flowchart for illustrating the processing of a reserved recording.

Fig.25 is a flowchart for illustrating the processing in transmitting recording reservation data by an E-mail program of a personal computer.

Fig.26 is a flowchart for illustrating the processing for recording reserving by a reserved recording setting program of a personal computer.

Fig.27 is a flowchart for illustrating the processing for a reserved recording.

Fig.28 is a flowchart for illustrating the processing of a reserved recording.

Figs.29A to 29C illustrate a medium.

Fig.30 is a flowchart for illustrating the processing for transmission of recording reservation data by the E-mail program.

Fig.31 shows a structure of a personal computer.

#### Best Mode for Carrying out the Invention

[0017] Referring to the drawings, the best mode for carrying out the present invention is explained in detail.

[0018] Fig.1 shows an embodiment of a picture recording and/or reproducing system according to the present invention. A personal computer 1-1 is fed with signals supplied from an antenna 2, adapted for receiving electrical waves transmitted from a specified television broadcasting station, and reproduces a specified picture and speech, that is picture and speech of a so-called television program, while recording the picture and the speech. The personal computer 1-1 also reproduces the picture and the speech corresponding to analog signals supplied from VCR (video cassette recorder) 3 or digital data supplied from DVCR (digital video cassette recorder) 4, over a network 5, such as IEEE (Institute of Electrical and Electronic Engineers) 1394, while recording the picture and the speech.

[0019] The personal computer 1-1 sends analog signals corresponding to the recorded speech and picture to the VCR 3, or sends digital data corresponding to the recorded picture and speech to the DVCR 4.

[0020] The personal computer 1-1 transmits to the server 7 a message requesting transmission of data for recording reserving of a pre-set program of a pre-set television station, referred to below as recording reservation data, through a network 6, such as Ethernet or Internet, based on the procedure such as HTTP (Hypertext Transfer Protocol). The server 7 is a so-called Web server, adapted for receiving a message requesting transmission of recording reservation data for recording reservation of a pre-set program of a pre-set television broadcasting station, transmitted from the personal computer 1-1, referred to below as the recording reservation data, to transmit to the personal computer 1-1 data for reserved recording of the pre-set program of

picture or speech data, recorded on the HDD 31, through the external bus 26 and the interface 27, to generate analog signals corresponding to the input picture or speech data, to send the generated signals to the VCR 3. Alternatively, the picture processing board 34 generates digital data, corresponding to the input picture or speech data, to send the generated data over the network 5 to the DVCR 4.

[0035] The picture processing board 34 is connected over the external bus 26, bridge 25 and the host bus 24 to the CPU 71.

[0036] A communication board 35 is a device for connection to the network 6. In more detail, it is constituted by an Ethernet board etc and is connected over the external bus 26, bridge 25 and the host bus 24 to the CPU 71.

[0037] The structure of the picture processing board 34 is now explained. Fig.4 shows the structure of the picture processing board 34. The 1394 interface 51 is configured in meeting with the prescriptions of the IEEE 1394 interface 51 and is connected to the network 5. The 1394 Interface 51 receives picture or speech digital data of the DVCR format, supplied from the DVCR 4 or the DVCR 5, based on the protocol consistent with the provisions of the IEEE 1394 interface 51, to send the received data to a DV (Digital Video) data interface 52.

[0038] The 1394 interface 51 also sends picture or speech digital data of the DVCR format, routed from the DV data interface 52, to the DVCR 4, based on the protocol in meeting with the prescriptions of the IEEE 1394 interface 51.

[0039] The DV data interface 52 outputs picture or speech digital data of the DVCR format, sent from the 1394 interface 51, and picture or speech digital data, routed from the digital selector 57, such as so-called non-compressed 4:1:1 digital data, to the DV data companding circuit 53, and also outputs the picture or speech digital data of the DVCR format supplied from the DV data companding circuit 53 to the 1394 interface 51, while outputting the non-compressed picture or speech digital data, supplied from the DV data companding circuit 53 and the digital selector 57, to the digital selector 57.

[0040] The DV data companding circuit 53 expands the picture or speech digital data of the DVCR format, supplied from the DV data interface 52, to non-compressed picture or speech digital data, to output the expanded digital data to the DV data interface 52. The DV data companding circuit 53 also compresses the non-compressed picture or speech digital data, supplied from the DV data interface 52, into picture or speech digital data of the DVCR format, to output the resulting compressed digital data to the DV data interface 52.

[0041] The tuner 54 is fed with RF (radio frequency) signals, fed from the antenna 2, to output picture or speech analog signals of a specified channel to the ana-

log selector 52. The analog selector selects one of the picture or speech analog signals, sent from the tuner 54, VCR 3 or the D/V (digital/analog) conversion circuit 61, to output the selected signals to the A/D (analog/digital) conversion circuit 56 or the VCR 3.

[0042] The A/D conversion circuit 56 converts the picture and speech analog signals, sent from the analog selector 55, into digital data, such as so-called 4:1:1 picture data, to output the converted signals to the digital selector 57. The digital selector 57 is fed with picture and speech digital data output by the DV data interface 52, A/D conversion circuit 56 or the MPEG (Moving Picture Experts Group) decoder 60 to select one of the picture or speech digital data to output the selected data to the DV data interface 52, MPEG encoder 58 or D/A conversion circuit 61, and to a bridge 59.

[0043] The MPEG encoder 58 compresses the picture or speech digital data, sent from the digital selector 57, to digital data of the MPEG system, to output the resulting data to the bridge 59. The MPEG encoder 58 also converts a scene change picture into a still picture which is output to the bridge 59.

[0044] The bridge 59 outputs the non-compressed picture or speech digital data, supplied from the digital selector 57, to the CRT 30, through the PCI bus 26 of the personal computer 1, carrying the picture processing board 34, and through the interface 27. The bridge 59 outputs the picture or speech digital data of the MPEG system, sent from the MPEG encoder 58, through the PCI bus 26 of the personal computer 1 carrying the picture processing board 34 to the HDD 31 or to the CPU 21. The bridge 59 also receives the picture or speech digital data of the MPEG system from the HDD 31 of the personal computer 1 over the PCI bus 26 to output the received digital data to the MPEG decoder 60.

[0045] The MPEG decoder 60 expands the picture or speech digital data of the MPEG system, supplied from the bridge 59, into non-compressed picture or speech digital data, to output the expanded data to the digital selector 57.

[0046] The D/A conversion circuit 61 converts the picture or speech digital data, supplied from the digital selector 57, into analog signals, which are output to the analog selector 55.

[0047] Meanwhile, the processing corresponding to the MPEG encoder 58 or the MPEG decoder 60 may be executed by the CPU 21 in accordance with a specified program.

[0048] Fig.5 illustrates the structure of the personal computer 7. The CPU 81 actually executes a variety of application programs or a basic OS. A ROM 82 stores basically fixed data among parameters for arithmetic operations and the program used by the CPU 81. The RAM 83 stores the program used in the execution of the CPU 81 or parameters incidentally changed during the program execution. These components are interconnected over a host bus 84 constituted by the CPU bus or

application program to properly utilize specified hardware resources.

[0063] A content database 122 is such a database managing attribute data of the AV contents, as later explained, and which furnishes attribute data to the AV contents, as later explained, or data specifying the file memorizing digital picture or audio data corresponding to the AV contents, to the recording and/or reproducing program 101, AV contents management retrieval program 102, AV contents editing program 103, recording reservation setting program 104 or to the reservation monitoring program 105.

[0064] A file I/O (input/output) 123 deals with a readout or write request of specified AV contents made up of one or more files of the recording and/or reproducing program 101, AV contents management retrieval program 102, AV contents editing program 103, recording reservation setting program 104 or the reservation monitoring program 105 through the content database 122, and actually executes data readout or data writing for specified files.

[0065] An encoder 126 executes the control of causing the MPEG encoder 58 of the picture processing board 34 to compress the picture or speech data inputted from the digital selector 57 into digital data of the MPEG system.

[0066] A decoder 127 executes the control of causing the MPEG decoder 60 of the picture processing board 34 to expand the picture or speech digital data of the MPEG system inputted from the bridge 59.

[0067] An output switching unit 128 actuates an analog selector 55 and the 1394 interface 51 of the picture processing board 34 to control the outputting of the analog signals from the picture processing board 34 or of the digital data through the network 5.

[0068] An input switching unit 129 actuates the analog selector 55, 1394 interface 51, DV data interface 52 and the digital selector 57 to select the analog or digital data inputted to the picture processing board 34.

[0069] A screen display 130 actuates the digital selector 57 and the bridge 59 etc to control display of a picture on the CRT 30.

[0070] A driver 131 deals with the requests from the encoder 126, decoder 127, output switching unit 128, input switching unit 129 and the screen display 130 to actually drive the picture processing board 34.

[0071] A TCP/IP 132 is a specified communication protocol and executes the processing of connecting the web server 125 to the portable telephone set 7.

[0072] Fig.8 illustrates the structure of an application program, middleware and drivers executed by the personal computer 1. The middleware is responsive to a request to an application program to operate pre-set drivers. The drivers actually operate pre-set hardware resources, such as MPEG encoder 58 of the picture processing board 34.

[0073] A hardware interface 121 arbitrates the use of the hardware resources requested by the recording

and/or reproducing program 101, AV content management retrieval program 102, AV content editing program 103, reservation recording setting program 104 or by the reservation monitoring program 105 to permit the application program to adequately exploit the pre-set hardware resources.

[0074] A content database 122 is such a database which manages attribute data of the AV contents, as later explained, and which furnishes data specifying a file memorizing the attribute data of the AV contents, as later explained, or data specifying the file memorizing the digital data of the picture or speech corresponding to the AV contents, to the recording and/or reproducing program 101, AV content management retrieval program 102, AV content editing program 103, reservation recording setting program 104 or to the reservation monitoring program 105.

[0075] A file I/O (input/output) 123 deals with a readout or write request for the pre-set AV contents of the recording and/or reproducing program 101, AV content management retrieval program 102, AV content editing program 103, reservation recording setting program 104 or the reservation monitoring program 105, made up of one or more files, through the content database 122, to execute data readout or writing for the pre-set files.

[0076] A dial-up server 124 deals with a call from the portable telephone set 17 to execute the processing of supplying a predetermined IP (Internet Protocol) address to the portable telephone set 17 through the telephone network 16, sets a communication path with the portable telephone set 17 and the personal computer 1 to permit data to be furnished to the portable telephone set 17. A web server 125 deals with the request received from the portable telephone set 7, based on the procedure such as HTTP, through a TCP (Transmission Control Protocol)/IP 132, or transmits data furnished from the CGI program 106 to the portable telephone set 17. The web server 125 furnishes the recording reservation data received from the portable telephone set 17 to the CGI program 106.

[0077] An encoder 126 executes the control of causing the MPEG encoder 58 of the picture processing board 34 to compress the picture or speech data inputted from the digital selector 57 into digital data of the MPEG system.

[0078] A decoder 125 performs control to cause the MPEG decoder 60 of the picture processing board 34 to expand the picture or speech digital data of the MPEG system input from the bridge 59.

[0079] An output switch 126 operates the analog selector 55 of the picture processing board 34 and the 1394 interface 51 to control the outputting of the analog signals from the picture processing board 34 and digital data through the network 5.

[0080] An input switch 127 operates the analog selector 55 of the picture processing board 34, 1394 interface 51, DV data interface 52 and the digital selec-

there is no necessity of demarcating the still picture data files 162-1-1 to 162-1-3 or the still picture data files 162-2-1 or 162-2-2 from one another, these are simply termed a still picture data file 162.

**[0094]** The picture the recording and/or reproducing program 101 displayed on the CRT 30 of the personal computer 1 is hereinafter explained. Fig.10 shows a picture displayed on the CRT 30 of the personal computer 1 when the picture recording operation is possible.

**[0095]** In a picture recording window 181 are set a channel for recording, a recording mode etc. When the picture recording is started, the recording and/or reproducing program 101 sets the operation of the tuner 54 of the picture processing board 34 or the MPEG encoder 58 of the picture processing board 34, based on the setting of the picture recording window 181, to generate pre-set AV contents 151 and the AV contents attribute record 152 for recording on the HDD 31.

**[0096]** When the picture recording window 181 is selected and active, a picture recording button 182 and a recording stop button 183 are both active to enable the operation. That is, if the picture recording window 181 is selected and active, the recording and/or reproducing program 101 starts and halts picture recording when a recording button 182 is clicked and a stop button 183 is clicked, respectively.

**[0097]** If the picture recording window 181 is selected and active, a playback button 184 and a pause button 185 are non-active, such that the recording and/or reproducing program 101 is not in operation even when the playback button 184 or the pause button 185 is clicked, respectively.

**[0098]** Fig.11 illustrates a picture displayed on the CRT 30 of the personal computer 1 when the recording and/or reproducing program 101 has started picture recording. The picture recording window 181 displays the time elapsed as from start of picture recording and the current time in addition to the recording channel and the recording mode.

**[0099]** When the recording is started, the recording button 182 is changed to a recording time change button 191. The recording time is changed whenever the recording time change button 191 is clicked.

**[0100]** A picture displayed when a specified AV contents 151 or AV contents 121 are reproduced by the recording and/or reproducing program 101 is explained. Fig.12 illustrates a picture displayed on the CRT 30 of the personal computer 1 when the recording and/or reproducing program 101 is able to perform a reproducing operation.

**[0101]** In a playback window 201 is displayed e.g., a picture recording mode of the AV contents to be reproduced. When the playback window 201 is selected and active, the stop button 183, playback button 184 and the pause button 185 are active to enable the operation. That is, when the playback window 201 is selected and active, the recording and/or reproducing program 101 starts, transiently stops and ultimately stops the repro-

duction when it is the reproducing button 184, pause button 185 and the stop button 183 that has been clicked, respectively.

**[0102]** On the other hand, if the playback window 201 is selected and active, the picture recording button 182 is non-active, such that the recording and/or reproducing program 101 is not in operation even when the recording button 182 is clicked.

**[0103]** Since the recording and/or reproducing program 101 is responsive to selection of the picture recording window 181 or the playback window 201 to change the recording button 182, stop button 183, reproducing button 184 or the pause button 185 to an active or non-active state, the user is able to know the possible contents of operation reliably and hence is able to operate speedily to prevent inadvertent operation.

**[0104]** The picture recording reservation is hereinafter explained. Figs.13 to 15 illustrate a picture displayed on the CRT 30 on startup of the recording reservation setting program 104. On startup, the recording reservation setting program 104 first demonstrates a window setting a channel for recording and date and time for start of picture recording, as shown in Fig.13. The user sets the channel for recording and date and time for start of picture recording in each pre-set file of the window. In the illustrated embodiment, hour and minute are set in respective different fields.

**[0105]** If, after setting the channel for recording and date and time for start of picture recording, a specified button, a button labelled "next" in the illustrated embodiment, is clicked, the recording reservation setting program 104 reads the channel for recording and data on the date and time of start of recording, as set in a specified field, to change the window to a window setting the end time and the recording mode shown in Fig.14.

**[0106]** The recording reservation setting program 104 displays the channel as set for recording and data on the recording start date and time, in a window used for setting the end time and the recording mode, while displaying the end time and the recording mode in the respective fields. It is noted that hours and minutes are set in respective different fields.

**[0107]** When the end time and the recording mode are set in this window, the recording reservation setting program 104 displays data usable as index for setting, such as using amount of the HDD 31. If the end time and the recording mode are set and a pre-set button, herein the button labelled "next", is clicked, the recording reservation setting program 104 reads-in the data of the end time and the recording mode, as set in pre-set fields, to change the window to a window for confirming the setting shown in Fig. 15.

**[0108]** The recording reservation setting program 104 displays data, such as the channel for recording, time and date of start of recording, time and date of end of recording and the recording mode, in the window used for confirming the setting. If the pre-set button, herein a button labelled "end", is clicked, the recording

NTV", the first numerical figure from left "4" is data specifying the channel, the numerical figure "4" to the right of the third comma from left is channel representing data and the letter sequence to the right of the fifth comma from left, divided by commas, that is "Nippon TV", "Nittete", "Nippon TV Broadcasting Network" and "NTV" denote letter sequences for matching to the pre-set letter sequence of the channel conversion file.

[0121] For example, if line 3 of the recording reservation data states: "station: Nippon TV", the recording reservation setting program 104 checks whether or not the letter string "Nippon TV" next to "station" is in agreement with the letter string next to the fifth comma from left in the channel conversion file.

[0122] If the letter sequence "4, 0, 0, 4, Nippon Television, Nippon TV, Nittete, Nippon TV Broadcasting Network, NTV" is included in the channel conversion file, as shown in the embodiment of Fig.18, the recording reservation setting program 104 verifies that the letter sequence "Nippon TV" (lying to the right of the fifth comma from left) is matched to the letter sequence of the channel conversion file. If the letter sequence of the recording reservation data is matched to that of the channel conversion file, the recording reservation setting program 104 sets the data specifying the matched channel of the same line of the channel conversion file as a channel.

[0123] For example, if the letter sequence "4,0,0,4, Nippon Television, Nippon TV, Nittete, Nippon TV Broadcasting Network, NTV" is matched to the letter sequence of the recording reservation data, the channel 4 is set.

[0124] So, if the letter sequence for specifying the channel in the recording reservation data is one of "Nippon Television, Nippon TV, Nittete, Nippon TV Broadcasting Network, NTV", the remote controller 4 can set the channel 4 based on the recording reservation data.

[0125] So, even if the letter sequence specifying the channel of the recording reservation data is ambiguous to more or less extent, the remote controller 4 can set the pre-set channel based on the recording reservation data.

[0126] There is stated, on lines 4 to 7 of the recording reservation data, data for specifying the date and time of starting the recording, whereas, on line 8 thereof, there is stated data specifying the recording end time.

[0127] The recording reservation data can not only be downloaded from the server 7, but also be appended to an E-mail for transmission to the personal computer 1-1. Since the recording reservation data is constituted by letter string data, the user of the personal computer 1-2 is able to prepare the recording reservation data easily using e.g., a ubiquitous application program, such as a word processor or a text editor.

[0128] The format explained with reference to Fig.17 is called TVPI (TV Program Information). The specifications of the TVPI are hereinafter explained.

## 1. Data Rules

[0129] The file extension in saving TVPI as a file is TVPI (TV Program Information).

[0130] Although data is text data, Content-Type is application/x-tv-program-info such that only the 2-byte line feed codes of 0x0d and 0x0a are allowed.

[0131] In the TVPI, data of the broadcasting station is handled, however, as for the alphabet for the name of the broadcasting station, any of Ascii, 2-byte code numerical figures or alphabets will do. The use of the so-called half-size katakana is, however, not allowed.

[0132] The name of the broadcasting station is not defined strictly. The broadcasting station is specified by ambiguous retrieval having several sorts of names inclusive of different names. The letters indicating year, month, date, hour or minute (alphabets for

[0133] abbreviation of month names in English, numerical figures and colons) are limited to ascii (1-byte code).

## 2. Data Structure

[0134] The TVPI data is made up of "a header portion" and a "memo portion". The "memo portion" can, however, be dispensed with and abbreviated, if so desired.

[0135] The header and memo portions are separated from each other by one or more lines.

[0136] From these specifications, no void line in the leading portion of the file is allowed, with the header portion being up to the first void line and with the memo portion beginning at the non-void line following the first void line.

```
Header Portion
Content-type:      application/x-tv-program-info;
charset=shift_jis
version: 1
station: NHK
:
:
void line
memo portion
today's news
sports corner
topics at home and abroad
:
:
```

[0137] In the header portion, several fields are defined. Each field is stated by "name of field: value" on the one-line-one-field basis. The letters of the field name is stated in ascii, with there being no distinction between upper and lower case letters.

3. Definition of the Field of the Header Portion

[0138] The name of the field that can be stated in the header portion and the method for stating the values

TVPI is to be notified.

The server time is to be stated "yyyymmddhh-mmss" (for example, 20 o'clock, 6 minute 9 second of September 16, 1999 → 19990916200609. The letter code is limited to ascii. This enables the enclosed timepiece to be corrected, while enabling the latest acquisition time in case plural overlapping reserves are entered.

Uri:

A field scheduled to be added.

It states URL. Plural fields can be stated.

By kicking this URL to the browser in replay, it is possible to browse a page interlocked to a program.

Uri-begin:

Uri-end:

A field scheduled to be added.

If this field is stated next to the [url:] field, it sets the time period the URL remains effective.

The offset from the leading end is stated by "hhmmss". The letter code is limited to ascii.

Two sample data are shown below:

#### sample data (1)

Content-type: application/x-tv-program-info; charset=shift\_jis  
version: 1  
station: NHK  
year: 1999  
month: 1  
date: 26  
start: 19:00  
end: 57:00  
program-title: NHK news 7  
performer: Sony Hanako  
Today's news  
Sports corner  
Topics both at Home and Abroad  
Exchange and Stock Information  
Weather Information etc.

#### Sample data (2)

Content-type: application/x-tv-program-info; charset=shift\_jis  
version: 2  
station:  
year: 1999  
month: 10  
date: 14

start: 01:00

end: 03:57

extend: 90, 10

clockadjust: 19990916210000

url: <http://www.uspto.gov/>

url: <http://www.uspto.gov/wep/menu/>

url-begin: 003145

url-end: 003215

url: <http://www.uspto.gov/wep/>

program-title: F1 grande-prix (Italy)

[0140] The operation of generating AV contents 151 executing the reserved recording based on the recording reservation data appended to a pre-set E-mail received from the personal computer 7 can be carried out by a method other than that shown in Fig.16.

[0141] Fig.19 illustrates a picture displayed on the CRT 90 by the personal computer 7 operating the personal information manager program. When the personal information manager program is in operation, the personal computer 7 causes a so-called scheduled input picture to be displayed. On this scheduled input picture, there are arranged a case name input field 301, in which to enter a scheduled case name, a scheduled site input field 302, in which to enter the scheduled site, a scheduled start date input field 303, in which to enter the scheduled start date, a scheduled start time input field 304, in which to enter the scheduled start time, a scheduled end date input field 305, in which to enter the scheduled end date, and a scheduled end time input field 306, in which to enter the scheduled end time.

[0142] When generating recording reservation data, a user inputs a title of a program to be appointed for recording, in the case name input field 301, while inputting the channel in the site input field 302. The user also inputs the airing start date of a program in the scheduled start date input field 303, while inputting the scheduled start date in the date input field 303, while inputting the scheduled start time in the scheduled start time input field 304 and inputting the program airing end date in the scheduled end date input field 305 and in the scheduled end time input field 306, respectively.

[0143] For example, in an example shown in Fig.9, "closeup ancient times" is entered as a program title in the case name input field 301, "1" indicating a channel 1, is input to the site input field 302 as a channel over which the program is aired, "1999/06/01" for June 1, 1999, indicating the date of start of airing of the program, is input to the scheduled start date input field 303, "21:00" indicating the time of start of the airing of the program, is input to the scheduled start time input field 304, "1999/06/01" for June 1, 1999, indicating the date of end of airing of the program, is input to the scheduled end date input field 305, and "21:45" is input as the program airing end time to the scheduled end time input field 306.

[0144] After inputting the pre-set data, the personal information manager program of the personal computer

reservation data, to terminate the processing.

**[0159]** In this manner, the reservation recording setting program 104 and the WWW browser 106 is able to execute the reservation of recording of a pre-set program speedily.

**[0160]** The processing for channel setting, corresponding to step S14 of Fig.22, is now explained with reference to the flowchart of Fig.23. At step S21, the reservation recording setting program 104 reads-in the recording reservation data furnished from the WWW browser 106. At step S22, the reservation recording setting program 104 reads out the character string next following "station" of the recording reservation data.

**[0161]** At step S23, the reservation recording setting program 104 reads out a character string of a pre-set channel name from a channel conversion file. At step S24, the reservation recording setting program 104 verifies whether or not the character string next following "station" is coincident with the character string of a pre-set channel name. If it is verified that character string next following "station" is coincident with the character string of the pre-set channel name, the reservation recording setting program 104 proceeds to step S25 to set a channel corresponding to the character string of the pre-set channel name.

**[0162]** At step S26, the reservation recording setting program 104 sets channel demonstration corresponding to the channel as set at step S25 (that is sets data for channel demonstration and data for channel name demonstration) to terminate the processing.

**[0163]** If it is verified at step S24 that character string next following "station" is not coincident with the character string of the pre-set channel name, the reservation recording setting program 104 proceeds to step S27 to verify whether or not the totality of the character strings of the channel names have been read out. If it is verified that the totality of the character strings of the channel names have been read out, the reservation recording setting program 104 proceeds to step S28 to display a message reading that no channel has been found on a CRT 30 to terminate the processing.

**[0164]** If it is verified at step S27 that the totality of the character strings of the channel names have not been read out, the reservation recording setting program 104 proceeds to step S29 to read out a character string of an other channel name. The reservation recording setting program 104 then reverts to step S24 to repeat the processing for verifying the possible character string coincidence.

**[0165]** As described above, the reservation recording setting program 104 is able to set a pre-set channel despite certain ambiguity in the character string next following the "station" of the recording reservation data.

**[0166]** Referring to the flowchart of Fig.24, the processing for furnishing recording reservation data by a server 7 in case the Web server program is loaded on a RAM 83 and a CPU 81 executes a Web server program, is now explained. At step S51, the Web server

program receives a message from the personal computer 1-1 based on e.g., the HTTP. At step S52, the Web server program verifies whether or not a message received from the personal computer 1-1 is a message requesting pre-set recording reservation data. If it is verified that the message received from the personal computer 1-1 is a message requesting pre-set recording reservation data, the Web server program proceeds to step S53 to transmit recording reservation data corresponding to the message to the personal computer 1-1 to terminate the processing.

**[0167]** If it is verified at step S52 that the message received from the personal computer 1-1 is not a message requesting pre-set recording reservation data, the step S53 is skipped to terminate the processing.

**[0168]** In this manner, the server 7 furnishes pre-set recording reservation data to the personal computer 1-1.

**[0169]** The processing of transmitting recording reservation data by the E-mail program of the personal computer 7-1 is explained with reference to the flowchart of Fig.25. At step S111, the E-mail program of the personal computer 7-1 attaches recording reservation data, previously generated and recorded, to an E-mail. At step S112, the E-mail program of the personal computer 7-1 transmits the E-mail, having the recording reservation data appended thereto, to the personal computer 1 over the network 6 to complete the processing.

**[0170]** As described above, the E-mail program of the personal computer 7-1 is able to transmit the recording reservation data to the personal computer 1. It is possible for the E-mail program to attach the recording reservation data appended to the E-mail received from a personal computer 7-2 at step S111 to its E-mail.

**[0171]** The processing of reception of the recording reservation data by the E-mail program 106 of the personal computer 1 is explained with reference to the flowchart of Fig.18. At step S121, the E-mail program 106 of the personal computer 1 receives an E-mail, having attached thereto the recording reservation data received from the personal computer 7-1 or 7-2, over the network 6. At step S122, the E-mail program 106 of the personal computer 1 records the recording reservation data, attached to the E-mail, in the RAM 23 or in the HDD 31, to terminate the processing.

**[0172]** It is possible for the E-mail program 106 to send the recording reservation data appended to the E-mail at step S122 directly to the reservation recording setting program 104.

**[0173]** In this manner, the E-mail program 106 of the personal computer 1 is able to receive the recording reservation data.

**[0174]** Referring to the flowchart of Fig.27, the processing of recording reservation by the reservation recording setting program 104 of the personal computer 1 is hereinafter explained. At step S131, the reservation recording setting program 104 reads out the recording



floppy disc 311, a CD-ROM (compact disc-read only memory) 312, MO (magneto-optical) disc 313, DVD (digital versatile disc) 314, a magnetic disc 315 or a semiconductor memory 316, and furnished as packaged software, as shown in Fig.29B

[0191] Moreover, the program can be transmitted over a radio path from a downloading site 321 through an artificial satellite 322 for digital satellite broadcasting to the personal computer 301, or transmitted through a network 331, a local area network or Internet, so as to be stored in the enclosed hard disc 302 in the personal computer 301, as shown in Fig.29.

[0192] The meaning of the medium in the specification is to be construed broadly to comprise all these mediums.

[0193] The personal computer 301 has enclosed therein a central processing unit (CPU) 342, as shown for example in Fig.31. To the CPU 342 is connected an input/output interface 345 over a bus 341. If a command is input via an input unit 347 comprising a keyboard, a mouse etc, through the input/output interface 345, the CPU 342 executes the program stored in a read-only memory (ROM) 343 corresponding to the semiconductor memory 303 of Fig.21A. Alternatively, the CPU 342 loads a program on a RAM (random-access memory) 344 to execute the program. This program is pre-stored on the hard disc 302, or is transmitted from an artificial satellite 322 or a network 331, received by a communication unit 348 and subsequently installed on a hard disc 302, or is read out from the floppy disc 311, CD-ROM 312, DVD 314 or the magnetic disc 315 loaded on a drive 349 so as to be installed on the hard disc 302. The CPU 342 outputs the processing results via e.g., the input interface 345 to a display 346 made up e.g., of a liquid crystal display (LCD).

[0194] Also, the step of stating the program furnished by the medium may include not only the processing executed chronologically in accordance with a stated sequence but also the processing executed in parallel or separately without being processed chronologically.

[0195] In the present specification, the system is to be construed as meaning an entire apparatus made up of plural devices.

## Claims

### 1. An information processing apparatus comprising:

transmission means for transmitting data for controlling the recording of a picture including data for specifying a channel, data indicating the date and time for starting the recording and data indicating the date and time for terminating the recording to a picture recording apparatus.

### 2. The information processing apparatus according to

claim 1 wherein

said transmission means transmits data configured for controlling the recording of said picture stated in a text.

3. An information processing method comprising a step of transmitting data for controlling the recording of a picture including data for specifying a channel, data indicating the date and time for starting the recording and data indicating the date and time for terminating the recording to a picture recording apparatus.

4. A medium for permitting a computer to execute a program including a step of transmitting data for controlling the recording of a picture including data for specifying a channel, data indicating the date and time for starting the recording and data indicating the date and time for terminating the recording to a picture recording apparatus.

5. An information processing apparatus comprising:

means for generating data configured for controlling the recording of a picture in meeting with a system exploited by a program supervising the personal information; and  
means for transmitting said data configured for controlling the picture recording to a picture recording apparatus.

6. The information processing apparatus according to claim 5 wherein said data is data of a v-calendar system.

7. An information processing method comprising the steps of generating data configured for controlling the recording of a picture in meeting with a system exploited by a program supervising the personal information, and transmitting said data configured for controlling the picture recording to a picture recording apparatus.

8. A medium for permitting a computer to execute a program including the steps of generating data configured for controlling the recording of a picture in meeting with a system exploited by a program supervising the personal information and transmitting said data configured for controlling the picture recording to a picture recording apparatus.

9. An information processing apparatus comprising:

means for inputting data configured for controlling the recording of a picture in meeting with a system exploited by a program supervising the personal information;

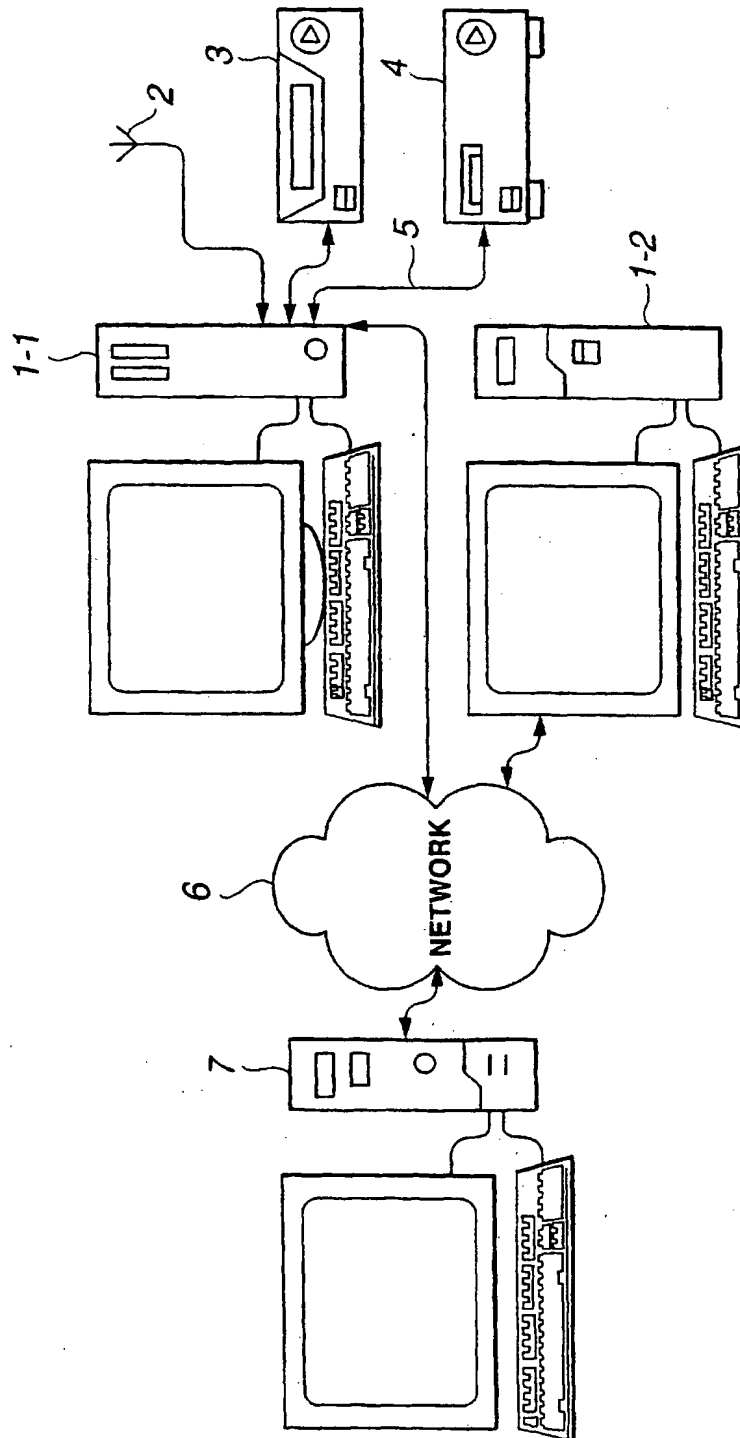


FIG.1

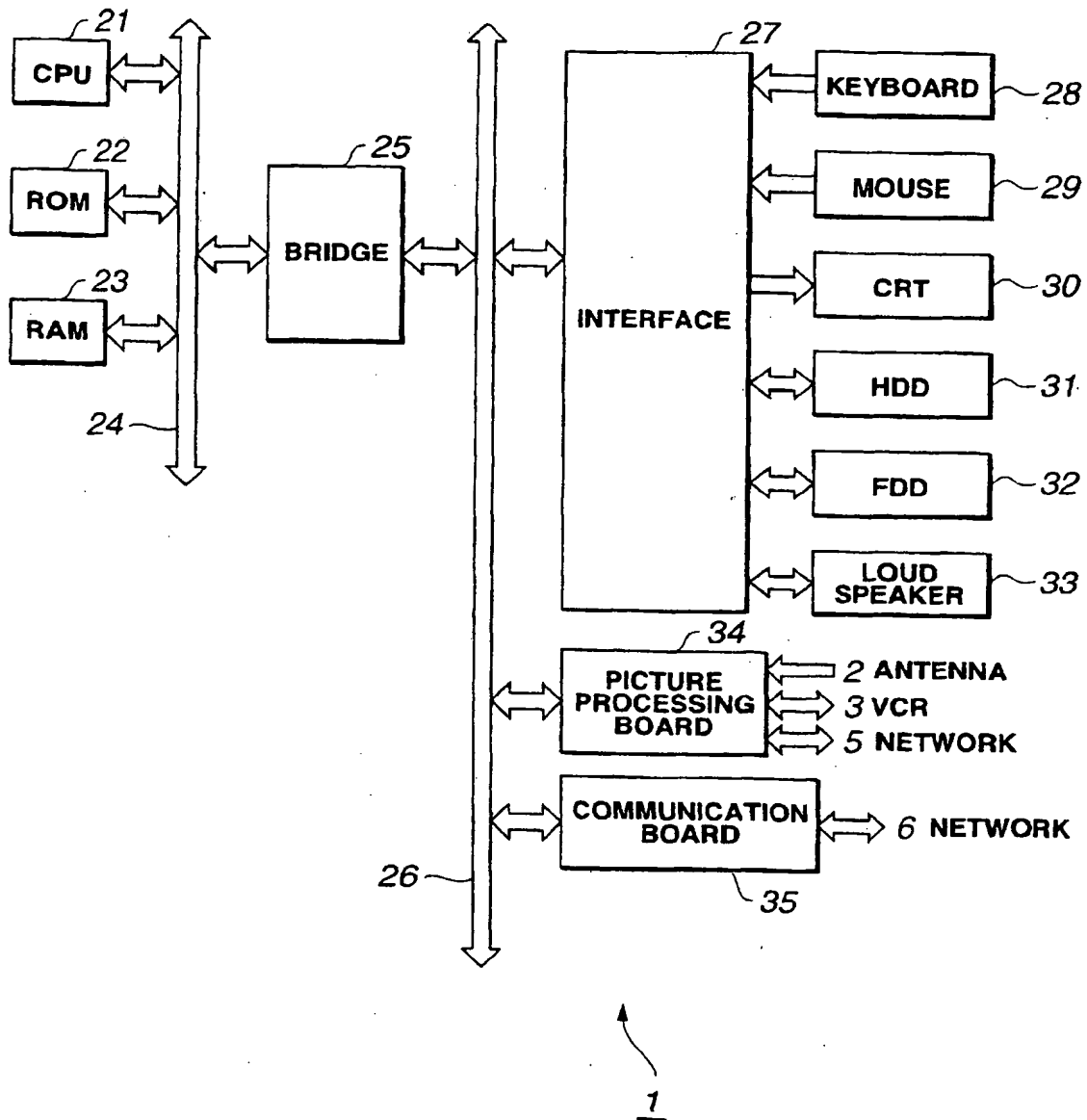


FIG.3

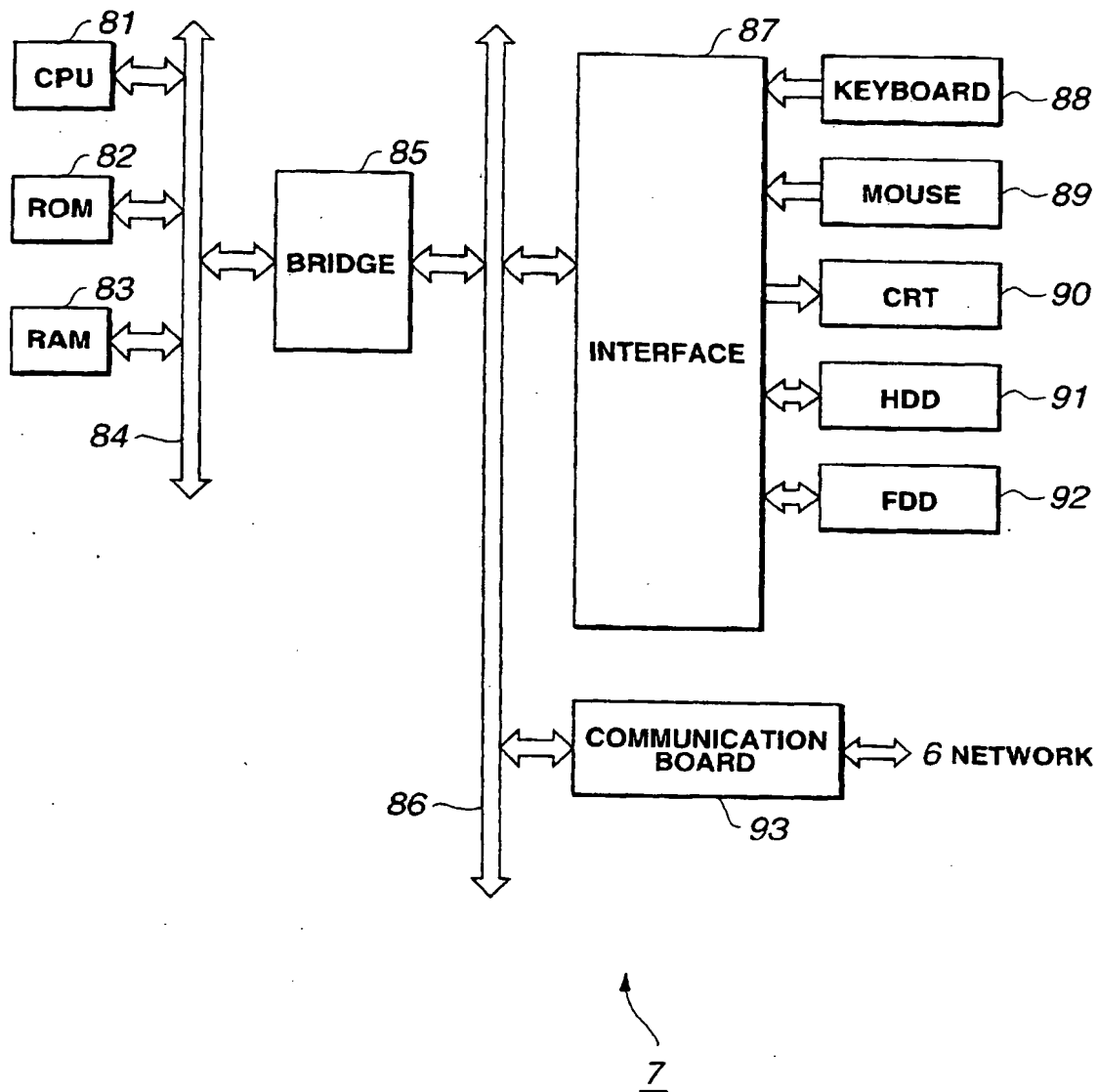


FIG.5

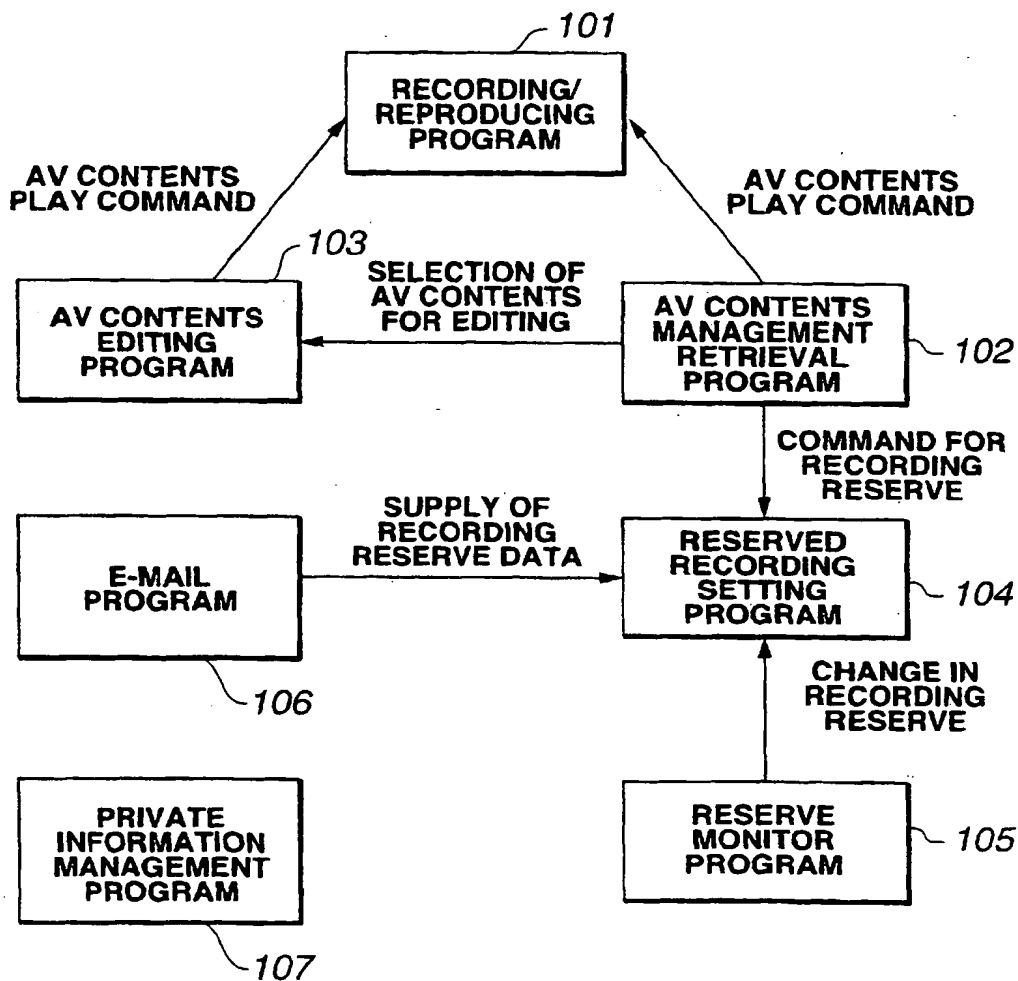


FIG.7

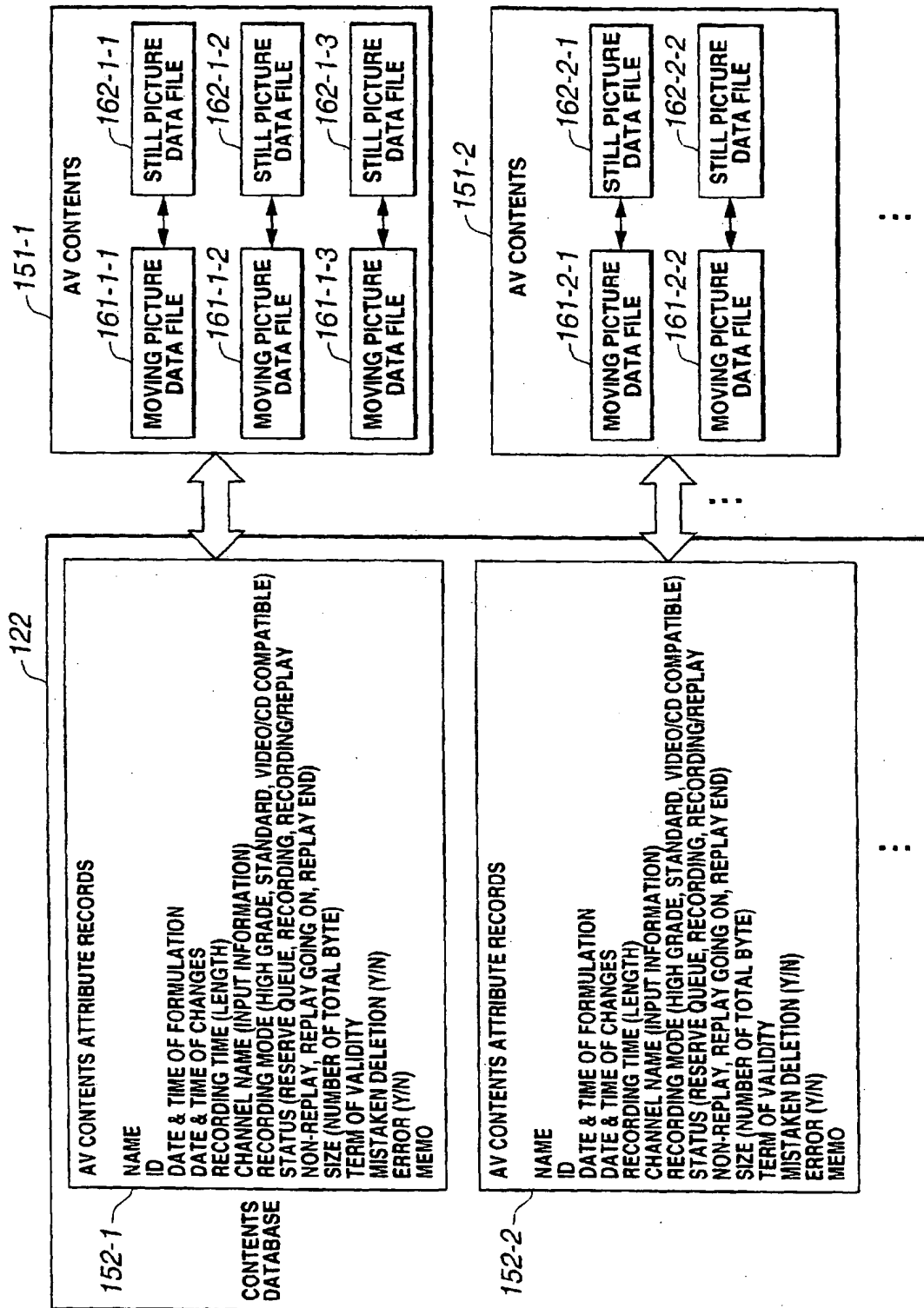


FIG.9

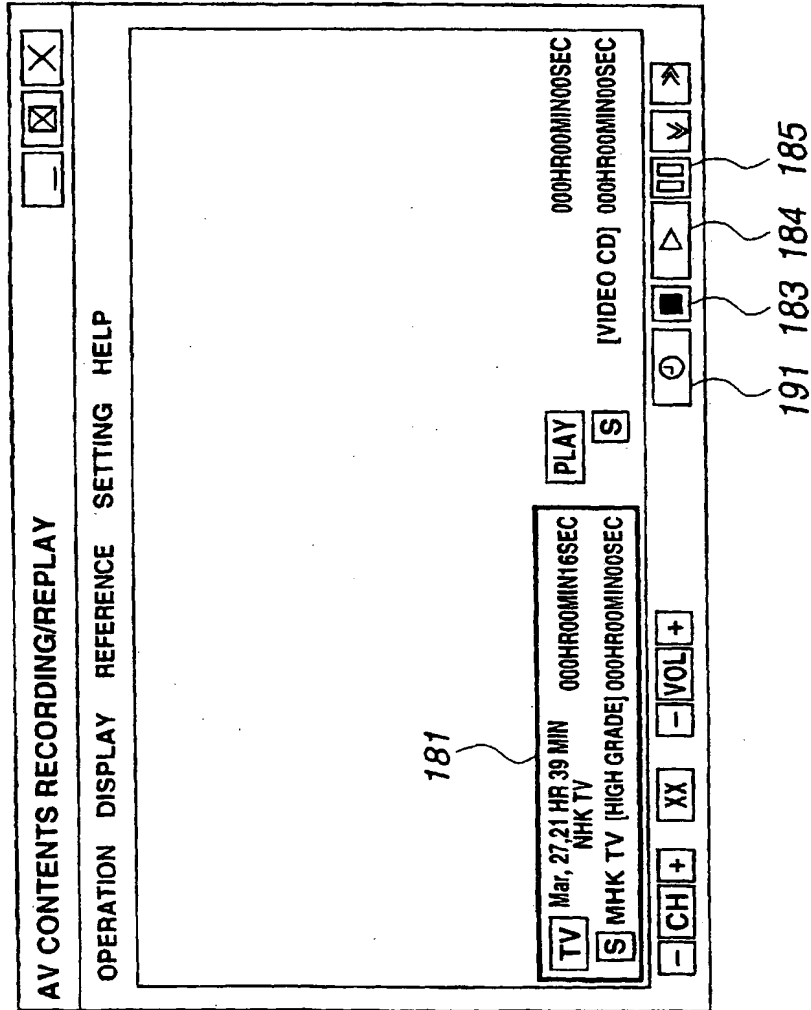


FIG.11

NEW RESERVE . . . SET CHANNEL & START DATA & TIME		
CHANNEL & START DATA & TIME SET		
CHANNEL	18ch FUJI TV ▼	
START DATE	FEB 28, 1999 ▼	
START TIME	16 HR ▼	30 MIN ▼
<div>CANCEL      NEXT      HELP</div>		

FIG.13

NEW RESERVE . . . SET END TIME & RECORDING MODE		
RECORDING RESERVE END TIME & RECORDING MODE SET		
CHANNEL	18ch FUJI TV	
START TIME	FEB 28, 1999 16HR 30MIN	
END TIME	FEB 28, 1999	18 HR ▼      30 MIN ▼
RECORDING MODE	STANDARD ▼	RECORDING TIME : 1HR 00MIN USED DISC CAPACITY : 2574.92MB NON-USED DISC CAPACITY : 9999.00MB
<div>CANCEL      RETURN      NEXT      HELP</div>		

FIG.14



GUIDE					
	1ch	3ch	4ch	6ch	
	NHK GENERAL	NHK EDUCATIONAL	NTV	TBS	
19 HOUR	0 7 HR NEWS ▽ TODAY'S NEWS ▽ SPORTS CORNER ▽ STOCK DATA ▽ WEATHER DATA CASTOR 251-1 251-2 57 TV MAP	0 AFTER SCHOOL CLUB WELCOME JUNIOR 251-5 251-6 30 DACTYLOLOGY 45 HEALTH FOR TOMORROW 251-7	0 PROFESSIONAL BASEBALL [GIANTS X DRAGONS] TOKYO DOME COMMENTATOR: PITCHER MOTODAI CASTOR: SABURO NIIDATE 251-10	0 FRIDAY TV 1 [EMERGENCY HOSPITAL 24 HRS] 251-11	
20 HOUR	0 DRAMA [NANTARA-KANTARA] 251-3 45 WEATHER FOR LOCAL 251-4	0 TONIGHT WITH YOU 251-8 30 LET'S LEARN BRAILLE 251-9			
RETURN					

FIG.16

SCHEDULE		
FILE	EDITION	DISPLAY ACTION HELP
	FREE TIME	ON-LINE
RE	CLOSE UP ANCIENT AGE	201
CHANNEL	1	202
START TIME	1999/06/01	21:00
END TIME	1999/06/01	21:45

FIG.19

BEGIN : VCALENDAR  
PRODID : -//Sony Corporation//Look look MIMEDIR/EN  
VERSION : 1.0  
BEGIN : VEVENT  
DTSTART : 19990601T210000Z  
DTEND : 19990601T214500Z  
LOCATION : 1  
CATEGORIES : Video  
DESCRIPTION : COSE UP ANCIENT AGE  
SUMMARY :  
PRIORITY : 3  
END : VEVENT  
END : VCALENDAR

**FIG.21**

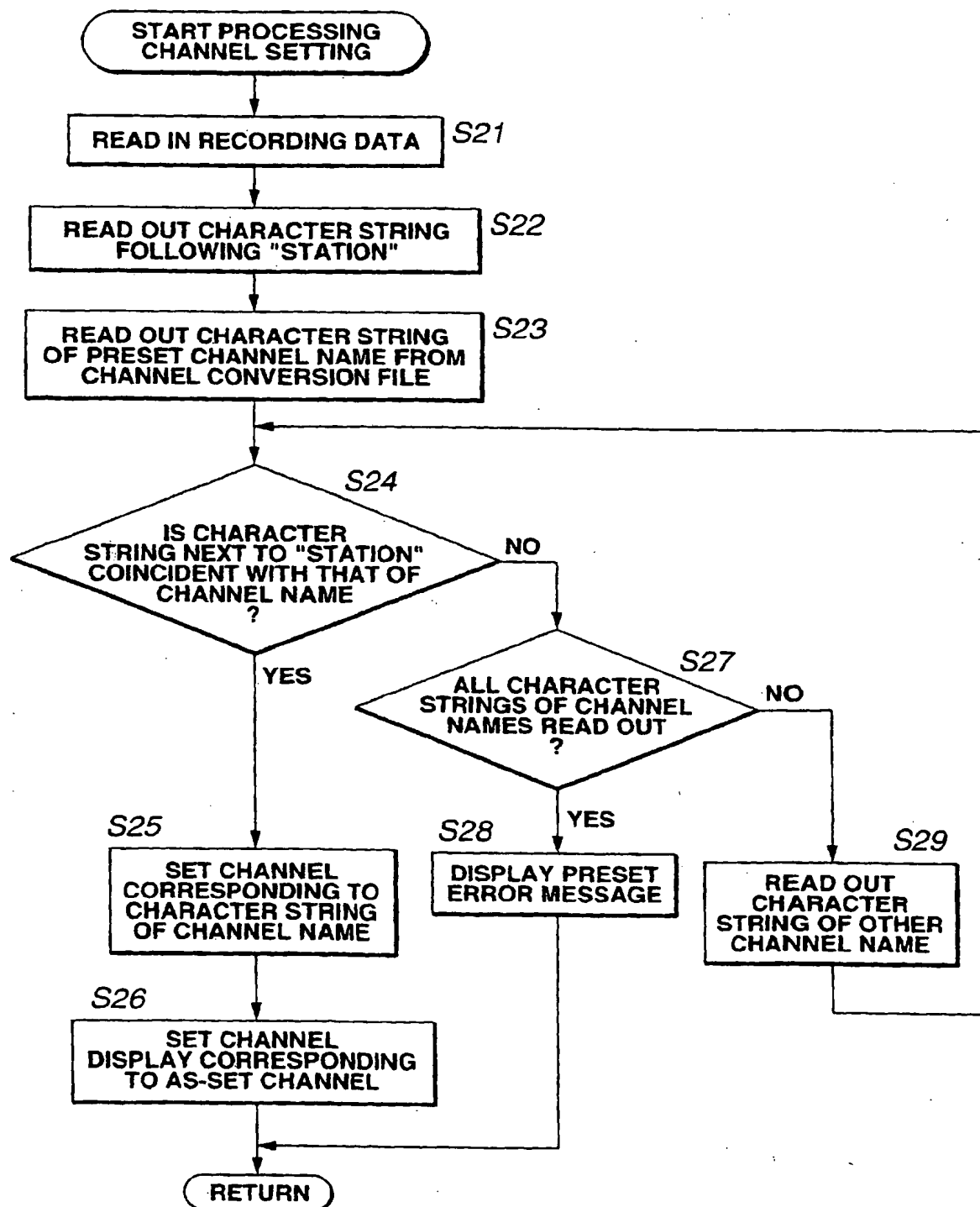


FIG.23

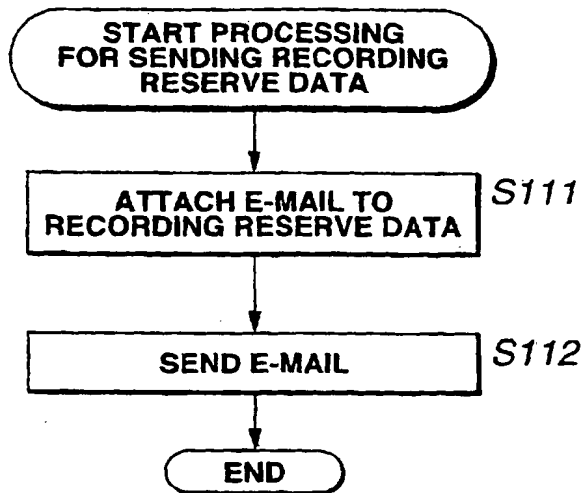


FIG.25

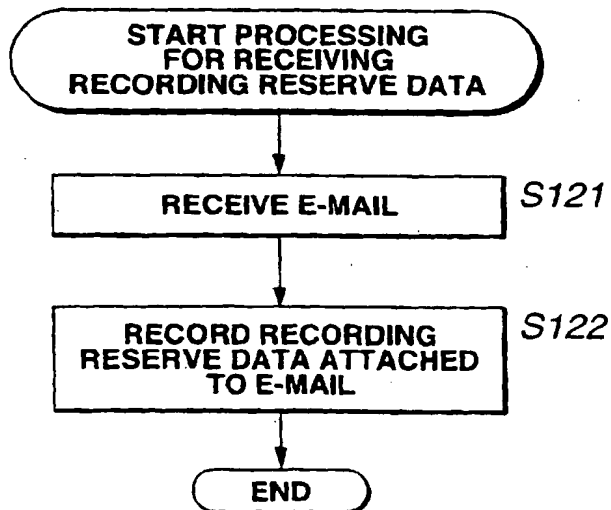


FIG.26

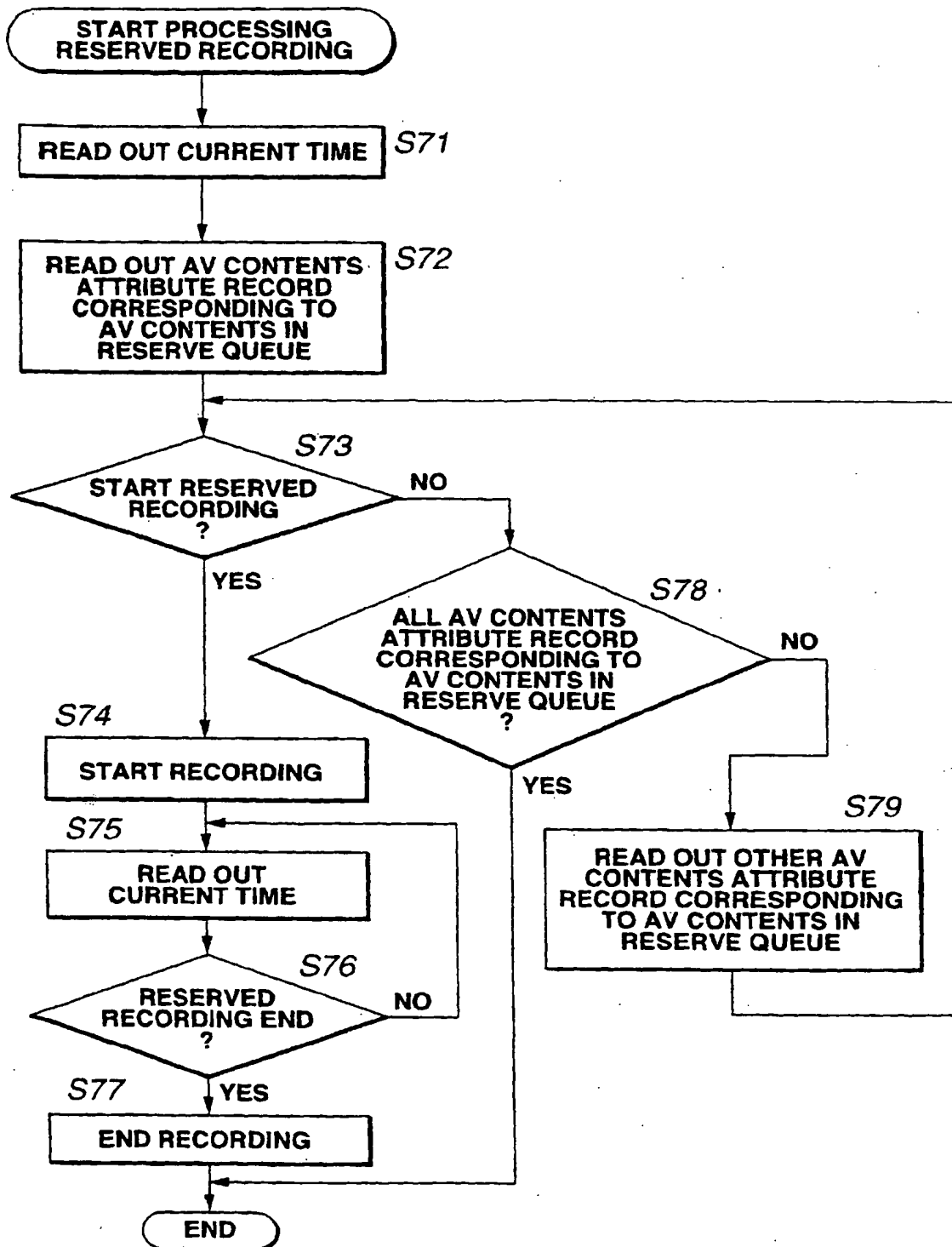
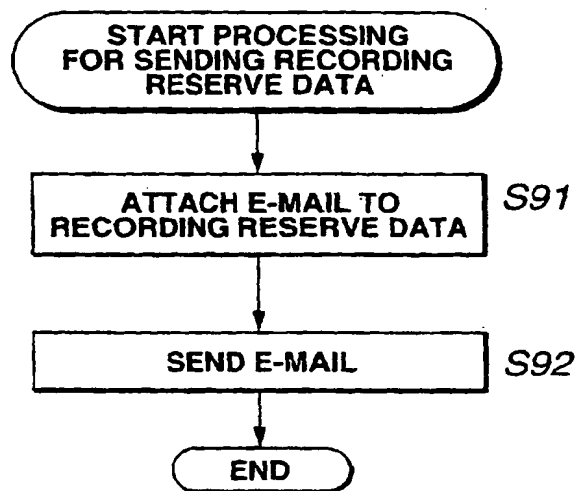


FIG.28



**FIG.30**

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP00/02671

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> Int.Cl <sup>7</sup> H04N 5/77, G11B20/10		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) Int.Cl <sup>7</sup> H04N 5/76 - 5/907, G11B20/10, G11B15/02 337-364		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2000 Kokai Jitsuyo Shinan Koho 1971-2000 Jitsuyo Shinan Toroku Koho 1996-2000		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP, 10-224875, A (Matsushita Electric Ind. Co., Ltd.), 21 August, 1998 (21.08.98), Par. Nos. [0008]-[0026], Figs. 1 to 7 (Family: none)	1-12
A	JP, 10-261251, A (Sony Corporation), 29 September, 1998 (29.09.98), Full text (Family: none)	1-12
A	JP, 10-155131, A (Sony Corporation), 09 June, 1998 (09.06.98), Full text (Family: none)	1-12
A	JP, 10-243361, A (Toshiba Corporation), 11 September, 1998 (11.09.98), Full text (Family: none)	1-12
A	JP, 10-174028, A (Toshiba Corporation), 26 June, 1998 (26.06.98), Full text (Family: none)	1-12
A	JP, 10-164487, A (Toshiba Corporation), 19 June, 1998 (19.06.98),	1-12
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
Date of the actual completion of the international search 18 July, 2000 (18.07.00)		Date of mailing of the international search report 01 August, 2000 (01.08.00)
Name and mailing address of the ISA/ Japanese Patent Office		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP00/02671

**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 13-14  
because they relate to subject matter not required to be searched by this Authority, namely:  

The subject matter of claims 13 and 14 relates to data itself and mere presentations of information. Therefore no international search report will be established according to PCT Article 17(2)(a)(i) and Rule 39.1(v).
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet (1)) (July 1992)